

Results of hysterosalpingography in the exploration of female infertility in Niamey

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World Journal of Advanced Research and Reviews, 2024, 22(01), 163–169

Publication history: Received on 14 February 2024; revised on 25 March 2024; accepted on 27 March 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.22.1.0858>

Abstract

Aims: Evaluate the contribution of hysterosalpingography in the exploration of female infertility in order to improve its management.

Materials and methods: This was a retrospective study from 07/24/2017 to 11/30/2020, and prospective from 12/15/2020 to 03/10/2021 at the Radiology department of the General Reference Hospital of Niamey collecting 223 patients referred for hysterosalpingography as part of the infertility assessment.

Results: the average age was estimated at 28.9 ± 7 years with extremes of 15 and 47 years. The age group of 20 to 30 was the most represented with 53.8%. Patients were referred for primary and secondary infertility in 44.8% and 48% respectively. HSG was normal in 53.8% and pathological in 46.2%. Tubal pathologies were found in 44.7% represented by tubal obstruction in 100% of cases; a hydrosalpinx in 21.4%; and one case of tubal endometriosis (1.4%). Uterine pathologies were revealed in 32% of cases, dominated by fibromyomas and uterine polyps in 47.4% and 26.3% respectively.

Conclusion: In Africa, a childless couple is often subject to various pressures from the family as well as society. The birth of a child in a home is a source of joy, and contributes more or less to maintaining a certain stability and harmony in the household. On the other hand, infertility in a home is often a source of divorce and/or family disintegration. The exploration of infertility almost always involves HSG in our country and must however be accessible in order to better care for infertile women.

Keywords: Hysterosalpingography; Female infertility; Uterine and tubal pathology; Niger

1. Introduction

Infertility is the inability of a couple to conceive after at least one year of unprotected and regular sexual intercourse. It can be primary (in this case the couple has never conceived a child) or secondary (the couple has had at least one previous pregnancy) [1-3]. Infertility affects approximately 15% of couples of childbearing ages with a recent prevalence of between 9 and 18% of the general population [2;3]. Many couples seek help to conceive, but this is often considered only a woman's condition. However, in approximately 35% of cases, in couples suffering from infertility, a male factor is identified with a female factor. In approximately 8% of cases, among couples suffering from infertility, a male factor is the only identifiable cause [4;5]. The exploration of an infertile couple is a complex process with several components: anatomical, functional and psychological. The first consultation for infertility must concern both partners; unfortunately, many women consult alone. It is therefore necessary to have a good tool for morphological evaluation of

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the internal genital organs of women and several examinations have been proposed for this purpose [1;6]. Hysterosalpingography (HSG) remains a valuable screening procedure in the initial assessment of infertility. It is a fluoroscopic imaging which explores the uterus and the tubes by administering an iodinated contrast product, through a uterine catheter or a cannula [7;8].

2. Methodology

This was a descriptive, retrospective analytical study from July 24, 2017 to 11/30/2020 and prospective from 12/15/2020 to March 10, 2021, a duration of 44 months.

All patients who were seen as part of the infertility assessment and whose HSG had been performed and then interpreted by the same radiologist were affected by the study.

3. Results

In 44 months, 223 patients were collected, among whom 44.8% (n=100) were referred for primary infertility, 48.0% (n=107) for secondary infertility and 7.2% (n=16) for utero-tubal assessment. 53.8% (n=120) of normal HSG and 46.2% (n=103) of HSG pathology were revealed.

The average age of the patients was 28.9 ± 7 years with extremes of 15 and 47 years. The most represented age group was 20 to 30 years old in 53.8% of cases (n=120). Adolescent girls represented 11.2% (n=25) (Fig. 1).

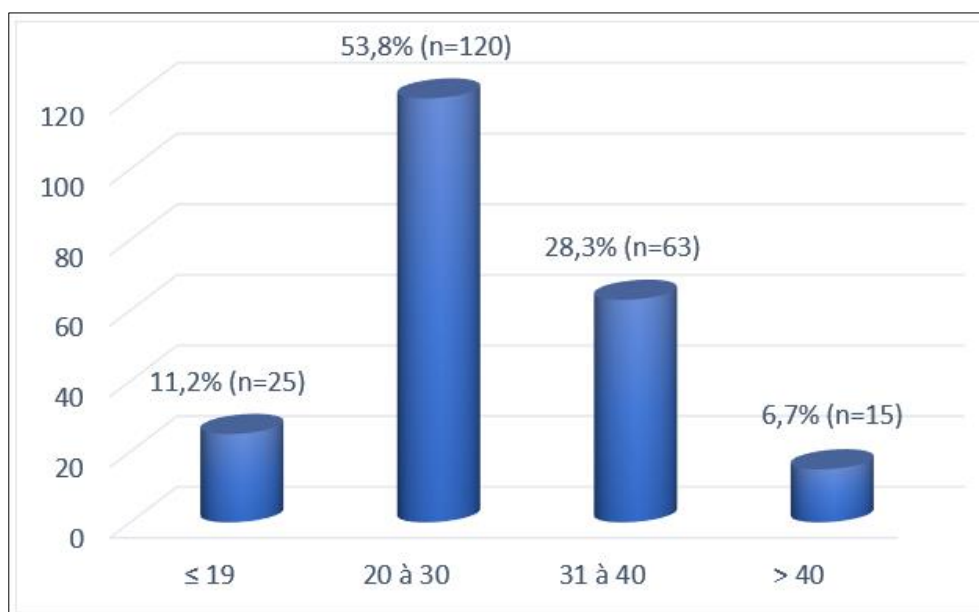


Figure 1 Distribution of patients according to age group

A tubal pathology was found in 44.7% of cases (n=46), a uterine pathology in 32% of cases (n=33) and the combination of the two in 23.3% of cases (n=24). Tubal pathologies were represented by tubal obstruction in 100% of cases (n=70) including unilateral tubal obstruction in 57.1% of cases (n=40) and bilateral tubal obstruction in 42.9% of cases (n=30). The site of tubal obstruction was proximal in 54.3% of cases (n=38) (fig. 2) and distal in 34.3% of cases (n=24). Hydrosalpinx was found in 21.4% of cases (n=15), including unilateral in 73.3% (n=11) (fig.3) and bilateral in 26.7% of cases (n=4); One case of tubal endometriosis was found (1.4%).

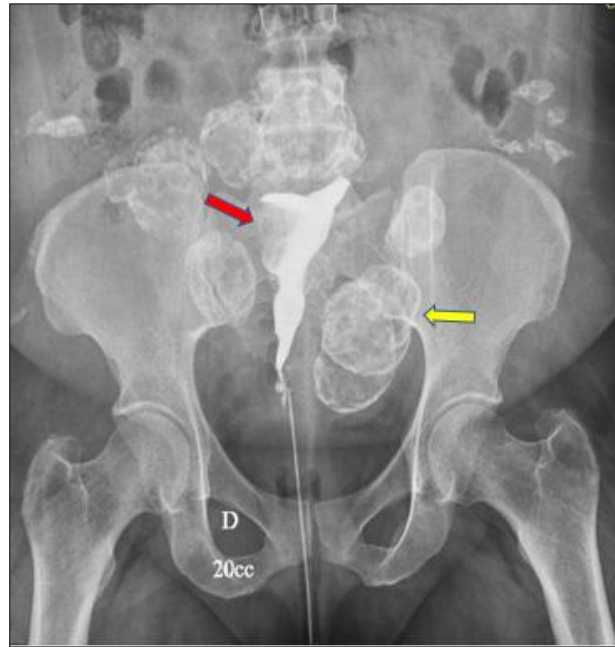


Figure 2 Photo of HSG. Calcified fibromyomas (yellow arrow) and deformation of the uterine cavity (red arrow) are noted due to the presence of other non-calcified fibromyomas



Figure 3 Photo of HSG. We note a left hydrosalpinx (red arrow).

Uterine pathologies were dominated by fibromyomas (fig. 1 and 4) and endo-uterine polyps in 47.4% of cases (n=27) and 26.3% of cases (n=15), respectively. Uterine synechiae were found in 21.1% of cases (n=12). Adenomyosis as well as uterine malformations were found in 5.3% of cases each (n=5 in each case).

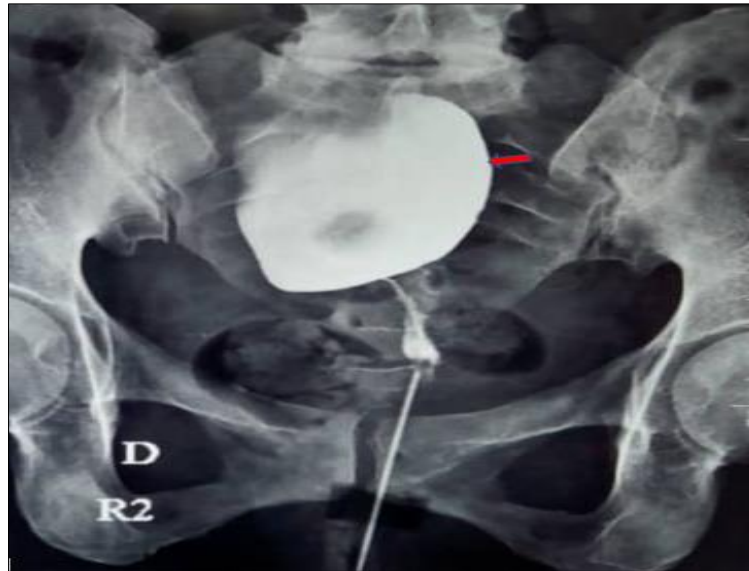


Figure 4 Photo of HSG. We note an enlarged, globular uterus whose lumen is heterogeneous in relation to the presence of an endocavitary fibromyoma (red arrow)

The majority of patients referred for primary and secondary infertility were aged 20 to 30 years (n=115) with a significant difference ($P = 0.001$ and $P = 0.000$). Patients aged 31 to 40 years presented more fibroids (n=15) with a significant difference ($P=0.003$). The proximal site of tubal obstruction was most frequently associated with bilateral topography (n=15) with a significant difference (p-value = 0.002). Tubal obstruction was the tubal lesion most frequently associated with secondary infertility with a significant relationship (P -value=0.04).

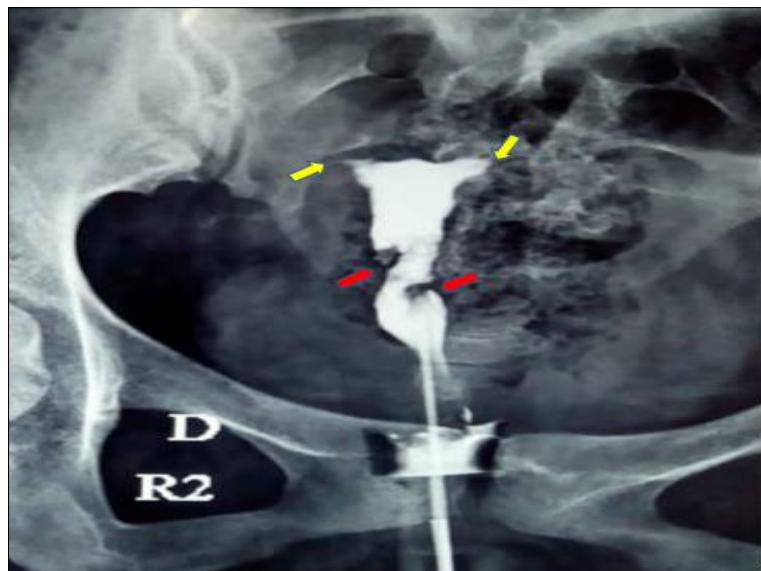


Figure 5 Photo of HSG. We note a uterus whose light and contours present subtraction images related to synechiae (red arrows). there is also an absence of opacification of the tubes related to proximal tubal obstruction (yellow arrows)

4. Discussion

The most represented age group was 20 to 30 years old with an average age of 28.9 ± 7 years and extremes of 15 and 47 years. The request for HSG was of greater interest to young women, this could be explained by the precocity of marriage in the local socio-cultural context [9–13]. The origin of natural conception difficulties had long been attributed to women. In the local socio-cultural context, the woman was automatically and often unjustly condemned in the event of infertility in the couple. We could then witness the remarriage of the man or the woman. A polygamous household

was often created because the first couple suffered from infertility. Likewise, a woman who has already had to conceive may find herself unable to conceive in the event of remarriage, hence the need to look on the man's side. This study shows that in more than 50% of cases the cause of infertility is not utero-tubal. We must look for functional ovarian pathology in women on the one hand and male causes on the other hand [14-15]. Fibromyomas constitute the main uterine anomaly encountered at HSG. But can only cause infertility when they cause deformation of the uterine cavity, isthmic, cornual, pedunculated submucosal and when they measure more than 5cm [15]. Uterine fibromyomas intervene by compressing the interstitial portion of the tubes or the cervical canal; but also hinder the implantation of the egg by deforming the uterine cavity. In general, their existence was not always correlated with infertility, but rather with miscarriages, especially when the part of the fibromyoma located in the uterine cavity is the majority. HSG is an interesting test to explore large submucosal or interstitial fibromyomas that deform the uterine cavity, as well as to detect residual fibromyomas or intrauterine synechiae after surgery for a myomatous uterus. Endometrial polyps are localized areas of endometrial hyperplasia whose impact on fertility remains debated. They may appear as thickened endometrium or endometrial masses. Endometrial polyps usually affect middle-aged women and abnormal genital bleeding or infertility is sometimes seen. For some authors, it is not clearly established that polypectomy would improve embryo implantation or the birth rate [16-17]. On the other hand, Perez-Medina et al found a spontaneous pregnancy rate of 65% after hysteroscopic polypectomy in infertile patients [18]. The mechanism by which polyps may impact fertility remains poorly understood and may be linked to local inflammation, decreased response to progesterone stimulation or distortion of the uterine cavity, interfering with sperm transport, implantation and the development of the embryo [16,19]. Synechiae (fig.5) represented 21.1% of uterine lesions and were significantly associated with secondary infertility (P-value=0.02) in our series. They are defined as a partial or total joining of the uterine walls; occurring after attack on the endometrial mucosa, leading to total or partial obliteration of the uterine cavity and/or the cervical canal [20]. They are of infectious, traumatic (curettage or aspiration after abortion) or post-operative origin and constitute the most frequent complication of intrauterine endoscopic procedures. Synechiae represent one of the main causes of secondary infertility with rates varying from 1.7% to 20% at hysteroscopy in infertile women [21]. We found 5.3% of adenomyosis, fewer cases than Kouamé NG et al [22]. Its cause is unknown, but the most widely accepted theory states that the barrier between the endometrium and myometrium, which would prevent the invasion of endometrial glands and stroma into the myometrium, is compromised; which allows the invasion to occur. In severe cases, it can be a factor in infertility due to an inflammatory reaction of the endometrium; which prevents the embryo from implanting in the uterine cavity [23]. Uterine malformation represented a low rate compared to other (non-malformative) uterine anomalies. Our results show a low rate of uterine malformations in sub-Saharan Africa. This could be explained by the absence of the main risk factor for uterine malformations, notably diethylstilbestrol. This could also explain the low rate of primary infertility compared to that of secondary infertility in our series. On the other hand, they are the main causes of primary infertility in European and Asian series [24–27]. The suspicion of uterine malformation is raised in most cases in the face of primary infertility. HSG appears as a first-line examination for fertility disorders with a specificity of 25.6 to 88% depending on the type of malformation. It is an examination which sometimes does not allow on its own to establish a precise and complete diagnosis of the uterine malformation, it is therefore supplemented by imaging techniques such as 3D ultrasound and MRI [28,29]. Overall, we note a high frequency of tubal anomalies. This could be explained by the high sensitivity and specificity of HSG in the study of tubal permeability, varying respectively between 65-96% and 68-96% [30]; but also, by the high frequency of genital infections in our African context. Indeed, 65 to 85% of tubal infertility is of infectious origin [11,12,31-33]. Tubal obstruction with or without hydrosalpinx constitutes a mechanical obstacle to the progression of gametes and the fertilized egg [31] of which pelvic infections and the accumulation of secretions in the fallopian tubes are essentially the causes [32]. We found one case of tubal endometriosis, less than in the literature [32;33]. Its role in infertility could be explained by the fact that endometriosis causes an obstacle to the migration of eggs, thus preventing fertilization.

5. Conclusion

The identification of the etiologies of infertility is done through a set of clinical and paraclinical examinations in which medical imaging occupies a special place in the etiological diagnosis of couple infertility in general and of female infertility. especially. Imaging in the assessment of female infertility mainly uses hysterosalpingography in our context. It must therefore occupy a special place and above all be accessible with a view to better care for infertile women.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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